TEWKSBURY HOSPITAL

ANNUAL DRINKING WATER QUALITY REPORT
(Consumer Confidence Report)
For 2006

To comply with 1996 federal Safe Drinking Water Act amendments (40 CFR Parts 141, 142), the MA Department of Public Health (MDPH) Tewksbury Hospital (public water supply #3295001) is issuing this annual report about its drinking water. The purpose of this report is to advance your understanding of the quality of your drinking water and heighten your awareness of the need to protect precious water resources.

WHERE DOES YOUR WATER COME FROM?

Tewksbury Hospital's water supply includes two groundwater supply wells and pumping stations, and two one-million gallon storage tanks. The wells are located on the hospital grounds. At this time, Well 1 is not being used to supply water to the Hospital due to ongoing investigations of environmental contamination nearby. Although the water from Well 1 has not been found to contain levels of contaminants above any regulatory (Drinking Water) criteria, the wellfield has been shut off since December of 2000 as a precaution while the site is being investigated and mitigated under the Massachusetts Contingency Plan (21E) Program. The Hospital continues to sample water from Well 1, but this data is not reported here. Well 3 provided all drinking water to the Hospital during 2006.
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HOW IS YOUR WATER TREATED?

The water is disinfected with chlorine, a typical water treatment practice for public water supplies. The Tewksbury Hospital water supply uses chemicals to control the pH and to prevent corrosion in the plumbing. Disinfection, pH adjustment and corrosion control were continuous throughout calendar year 2006.

All surface water reservoirs and some ground water sources contain numerous microorganisms some of which can cause people to be sick. To eliminate disease-carrying organisms it is necessary to disinfect the water. Tewksbury Hospital uses a chlorine compound called sodium hypochlorite for this purpose. Chlorine destroys organisms by penetrating cell walls and reacting with enzymes. Since the early part of the 20th century, disinfection with chlorine has been shown to be effective at ensuring that water is free of harmful organisms and safe to drink.

Many drinking water sources in New England, including Tewksbury Hospital's, are naturally acidic (meaning they have a pH of less than 7). This water has a tendency to corrode and dissolve the metal piping it flows through. This not only damages pipes but can also result in the addition of harmful metals, such as lead and copper, to the water. For this reason it is beneficial to add chemicals that provide a protective coating on the inside of the pipe and make the water neutral (having a pH of about 7) or slightly alkaline (having a pH above 7). Tewksbury Hospital adds potassium hydroxide and an orthopolyphosphate chemical to its water. The orthopolyphosphate, with a trade name of K-5, is often referred to as an inhibitor and is what coats the inside of the pipe. Potassium hydroxide raises the water's pH to a level at which it is much less corrosive.

All chemicals used for disinfection and corrosion control are approved for water treatment by either the National Sanitation Foundation, or Underwriter's Limited, both accredited by the American National Standards Institute (ANSI). Water treatment chemicals must also meet performance standards established by the American Water Works Association.

HOW ARE WE IMPROVING YOUR WATER AND PROTECTING IT FOR THE FUTURE?

During 2006, the Tewksbury Hospital water system was maintained in accordance with good practice. The system has a certified operator and follows all applicable MDEP and Federal Environmental Protection Agency (EPA) regulations and requirements. No major changes to water supply or distribution took place in calendar year 2006.

Tewksbury Hospital is participating in additional source water assessment with MDEP through the Source Water Assessment Program (SWAP). This includes evaluation of potential risks from existing and past land uses throughout the Zone II, the area where groundwater may contribute to the drinking water at Tewksbury Hospital. A SWAP report has been prepared by MDEP based on information from a variety of sources, including databases of hazardous waste sites, hazardous waste generators, and local knowledge supplied by the hospital. This report will help the hospital, DEP and the public understand any potential hazards to the water supply. This SWAP report contains information about the land uses near the well used to supply drinking water to the hospital, potential sources of contamination to the well, and information about the groundwater protection bylaws in the Towns of Tewksbury and Andover that assist the Hospital in protecting the quality of the water.

A copy of the SWAP report is available on the DEP website at the following address: http://www.mass.gov/dep/water/drinking/3295001.pdf

There is Hospital-owned land inside the Zone II, much of which is used for agriculture through an agreement with the individual farmers who use the land. Staff from MDPH's Center for Environmental Health and Tewksbury Hospital work with the farmers to limit the use of pesticides and fertilizers and protect the groundwater from potential contamination.

SUBSTANCES FOUND IN TAP WATER:

WHERE DO THEY COME FROM?

Sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals, and in some cases, radioactive material. It can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water may include:

Microbial contaminants -such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

Inorganic contaminants -such as salts and metals, which can be naturally-occurring or result from urban stormwater runoff, industrial, or domestic wastewater discharges, oil and gas production, mining, or farming.

Pesticides and herbicides -which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.

Organic chemical contaminants -including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.

Radioactive contaminants -which can be naturally occurring or be the result of oil and gas production and mining activities.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily indicate that water poses a health risk. In order to ensure that tap water is safe to drink, the U.S. Environmental Protection Agency (EPA) prescribes

unt of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water that must provide the same protection for public health. Listed in the tables on the next two pages are the contaminants detected in Tewksbury Hospital's water supply in 2006. Not listed are over 100 other contaminants for which we tested but that were not detected at all.

DEFINITIONS

Action Level – the concentration of a contaminant that, if exceeded, triggers treatment or other requirements, which a water system must follow.

Maximum Contaminant Level Goal (MCLG) – the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

Maximum Contaminant Level (MCL) – the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

Maximum Residual Disinfectant Level (MRDL) – The highest level of a disinfectant (chlorine) allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Maximum Residual Disinfectant Level Goal (MRDLG) – The level of a drinking water disinfectant (chlorine) below which there is not known or expected risk to health. MRDLG's do not reflect the benefits of the use of disinfectants to control microbial contaminants.

Secondary Maximum Contaminant Level (SMCL) -- These standards are developed to protect the aesthetic qualities (e.g., taste, odor or fixture staining) of drinking water and are not health based.

Massachusetts Department of Environmental Protection, Office of Research and Standards Guideline (ORSG) – This is the concentration of a chemical in drinking water, at or below which adverse health effects are unlikely to occur after chronic (lifetime) exposure. If exceeded, it serves as an indicator of the potential need for further action.

Unregulated Contaminants - Unregulated contaminants are those for which neither EPA nor MDEP has established drinking water standards. The purpose of unregulated contaminant monitoring is to assist EPA and MDEP in determining their occurrence in drinking water and whether future regulation is warranted.

ppm – parts per million or milligrams per liter, sometimes written as mg/l
ppb – parts per billion or micrograms per liter , sometimes written as μg/l
pCi/l – picocuries per liter (a measure of radioactivity)
mrem/year – millirems per year (a measure of radiation)
ND – substance not detected in sample.

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WATER QUALITY TESTING RESULTS – TEWKSBURY HOSPITAL – 2006

CONTAMINANT	90TH PERCENTILE[a]	# OF SITES EXCEEDED	# OF SITES SAMPLED	ACTION LEVEL	MCLG	VIOLATION (Y/N)	POSSIBLE SOURCE OF CONTAMINATION
Lead and Copper Results							
Lead (ppb)	ND	0	10	15	0	No	Corrosion of plumbing
Copper (ppm)	0.08	0	10	1.3	1.3	No	Corrosion of plumbing

CONTAMINANT	HIGHEST # OF SAMPLES POSITIVE IN A MONTH (FROM ABOUT TEN SAMPLES PER MONTH)	MCL	MCLG	VIOLATION (Y/N)	POSSIBLE SOURCE OF CONTAMINATION
Microbiological Results					
Total Coliform	1	1 sample per month	0	No	Naturally present in the environment

CONTAMINANT	HIGHEST DETECT VALUE	RANGE DETECTED	MCL	MCLG	VIOLATION (Y/N)	POSSIBLE SOURCE OF CONTAMINATION
Regulated Organic Contaminants						
Chlorine (ppm)	0.30	0.08-0.30	4 [MRDL]	4 [MRDLG]	No	Water additive used to control microbes
Total Trihalomethanes (TTHMs) (ppb)	42	--	80	80	No	Byproduct of drinking water chlorination (see below for individual trihalomethanes under unregulated contaminants)
Total Haloacetic Acids (HAA5) (ppb)	3.7	--	60	60	No	Byproduct of drinking water disinfection
Regulated Inorganic Contaminants						
Nitrate (ppm)	4.8	4.1 – 4.8	10	10	No	Runoff from fertilizer use; leaching from septic systems or sewage piping; erosion of natural deposits
Nitrite (ppm)	ND	ND	1	1	No	Runoff from fertilizer use; leaching from septic systems or sewage piping; erosion of natural deposits
Regulated Radioactive Constituents[a]						
Gross Alpha (pCi/l)	0.6 ($\pm$1.1)	--	15	0	No	Erosion of natural deposits
Gross Beta (pCi/l)	4.4 ($\pm$1.7)	--	50[b]	0	No	Erosion of natural deposits
Radium 226 and 228 combined (pCi/l)	0.6	--	5	5	No	Erosion of natural deposits
Radon (pCi/l)	330 ($\pm$30)	--	None	ORSG is 10,000	No	Naturally occurring in groundwater
Unregulated Constituents						
Sulfate	31 [c]	--	Not Regulated [SMCL is 250]		No	Natural sources.
Sodium (ppm)	61 [c]	--	Not Regulated [ORSG is 20]		No	Naturally occurring, or from runoff of road salt.

[a]The MDEP, consistent with EPA rules, allows us to sample for some contaminants less than once per year because the concentrations do not change frequently. Radioactive constituents were last sampled in 2003.
[b]The MCL for beta particles is 4 mrem/year. EPA considers 50 pCi/l to be the level of concern for beta particles.
[c]Sodium and Sulfate were last sampled in 2004.

WATER QUALITY SUMMARY

Based on available data concerning regulated contaminants reviewed for the purpose of this report, your drinking water is in compliance with all applicable regulations and standards. No regulated contaminants were detected in your drinking water at or above any MCL.

Total Coliform Results:

During routine sampling on August 8, 2006, coliform bacteria were detected in two water samples, one taken from the raw water at the pump station for Well 3 (prior to chlorination) and another taken from a sample tap in the Saunders Building. Immediate action was taken, including monitoring the amount of chlorine added to the system, and resampling with accelerated analysis. Repeat samples were taken from the same sampling locations on August 10, 2006 and showed no coliform bacteria. Also, during routine sampling on December 12, 2006, coliform bacteria were detected in a sample collected from the raw water at the pump station for Well 3. A repeat sample, taken with accelerated analysis on December 15, 2006, showed no coliform bacteria.

Coliforms are bacteria that are naturally present in the environment and usually do not pose a risk to health. They are used as an indicator that other, potentially harmful, bacteria may be present. Finding coliforms in more samples than allowed is a warning of other potential problems in the system. Raw water samples (pre-chlorination) are collected for information on the general status of the water supply, but do not count towards meeting the MCL for bacterial contamination because chlorine is added to prevent such levels in the water that is eventually provided via taps throughout the hospital.

Each time a sample tested positive for coliform bacteria, it was also immediately tested for the presence of fecal coliform, a subset of the coliform group which may be more indicative of a health hazard. No fecal coliform were detected in any sample in 2006.

Other Information:

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and some infants can be particularly at risk from infections. These people should seek advice from their health care providers about drinking water. EPA/Centers for Disease Control guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

WANT TO KNOW MORE? WANT TO GET INVOLVED?

Want to know more about Tewksbury Hospital's drinking water? Please call Bill Kelleher, Director of Facilities 978-851-7321 x2217 or Ruth Alfasso at the Massachusetts Department of Public Health, Center for Environmental Health, Environmental Toxicology Program at (617) 624-5757 with any questions, comments, or concerns. Protection of Tewksbury Hospital's water supply and water resources everywhere is everyone's concern.